Time Electronics
Calibration, Test and Measurement

User Manual

1090
Process Calibrator

Revision 2209-1

Time Electronics Ltd
Unit 5, TON Business Park, 2-8 Morley Road,
Tonbridge, Kent, TN9 1RA, United Kingdom.

T: +44 (0) 1732 355993 | F: +44 (0) 1732 350198
mail@timeelectronics.co.uk | www.timeelectronics.com

This manual provides operating and safety instructions for the Time Electronics product. To ensure correct operation and safety, please follow the instructions in this manual.

Time Electronics reserves the right to change the contents, specifications and other information contained in this manual without notice.

Contents

1 Introduction

The 1090 is a high-performance instrument designed for use in both the lab and field applications. It simulates and can measure from the most commonly used temperature sensors - thermocouples (8 types) and Pt100.

In addition, it can generate and measure mV and mA.

Display is via a large, easy to read, 16-character LCD screen. The user interface is simple and intuitive.

Increment and Decrement (Inching) keys enable the output to be stepped up or down in 0.1, 1 or 10 ºC steps, and 0.1,1 or 10 µV/mV/mA. This feature is especially useful for calibrating thermostat type controllers with hysteresis.

Automatic or manual cold junction compensation can be selected and applied.

Up to 10 frequently used output values can be stored in the non-volatile memory. These can be re-called at any time and stepped through either manually or automatically.

The 1090 is supplied in a robust case with a carrying strap. A pocket for this manual and test leads is provided. Full operation, including re-charge, is possible without removal from the case. The lid is reversible to simplify operation.

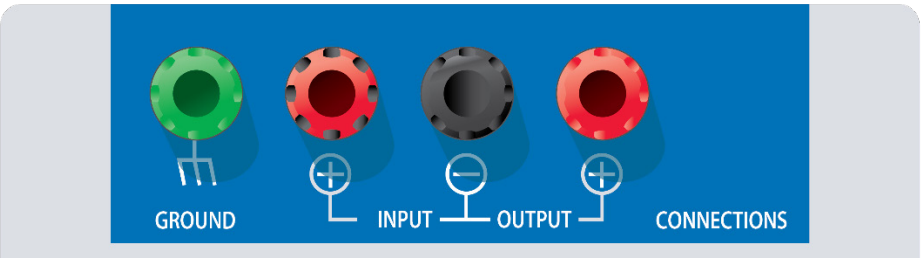
The 1090 is powered by a 5000 mA Ni-MH battery pack; this will give a maximum operation time of up to 60 hours (depending on functions used). It is important not to over-charge the battery pack, as this could lead to a shortened life.

2 Controls

2.1 Terminals

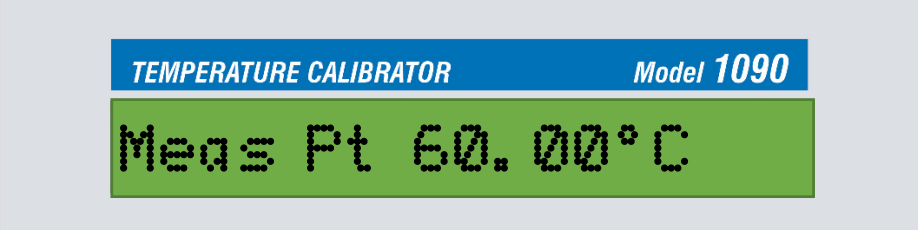
Connections are made by 4 mm terminals are situated at the top of the instrument.

These are clearly labelled for INPUT / OUTPUT / GROUND. Ground is the earth chassis connection.



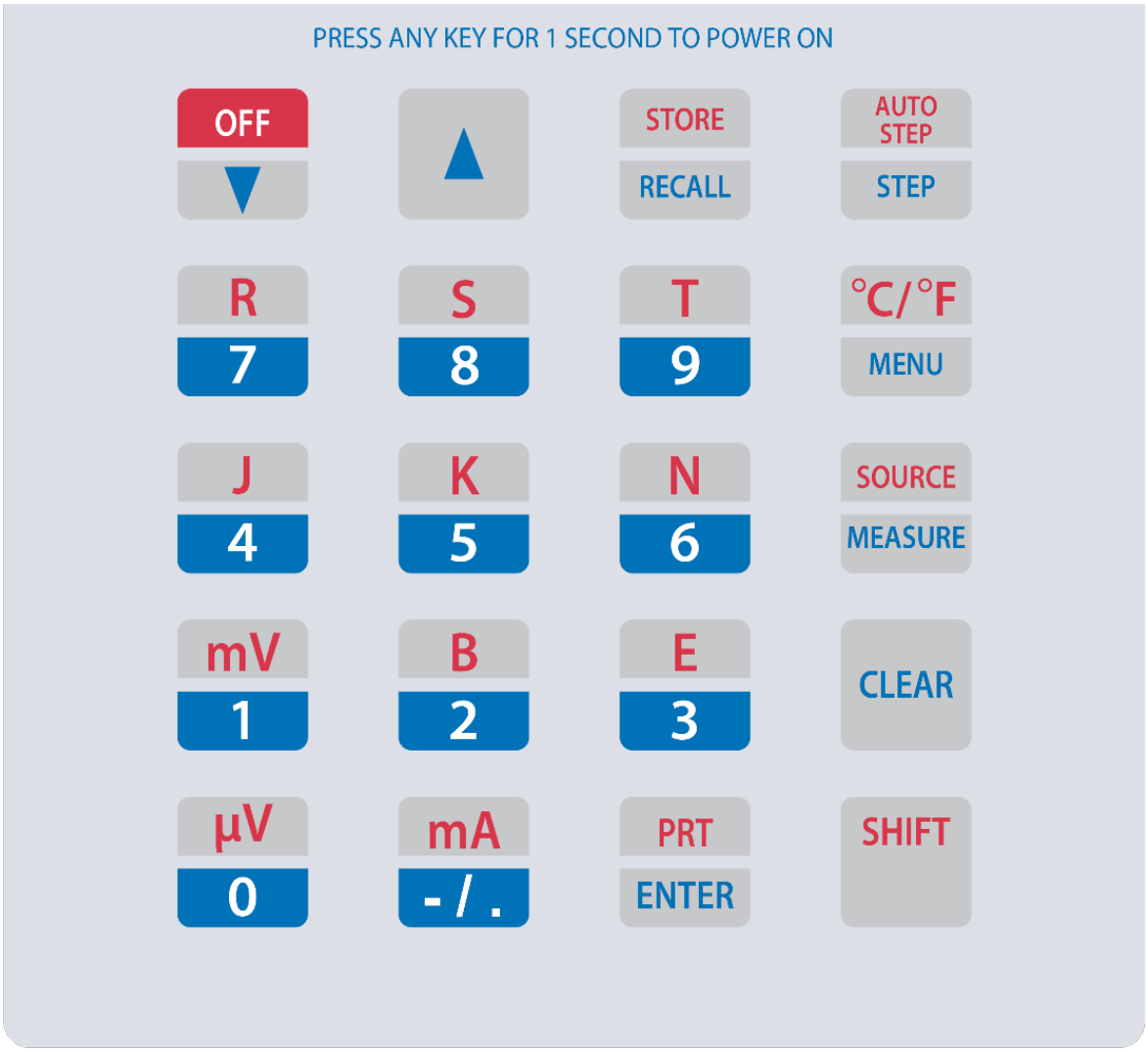
2.2 Display

A 16 digit LCD screen provides a clear readout for the selected functions, source and measurement values, and menu controls/settings.



2.3 Keypad Primary and Secondary functions

Most of the 1090's keys are dual function. Their primary function is shown in **blue** on the lower half while the secondary function is shown in **red**, on the upper half. To access the secondary functions press the 'SHIFT' key before the required secondary function key. The display indicates when the 'SHIFT' key has been pressed by showing an 'S' on the right hand side. This mode is always cancelled after the secondary function is selected, or the 'CLEAR' is pressed.



Note: The secondary keypad functions are available only when relevant to the selected operating mode. For example: 'Auto Step' is not available when the 1090 is in measure mode.

2.4 Control Buttons

Button	Primary Function	Secondary Function (SHIFT -> BUTTON)
SHIFT	Sets keypads to secondary (RED) functions *The 'SHIFT' mode has an automatic time out. This means that it will be cancelled if the secondary function is not selected within a few seconds.*	
CLEAR	Clears value	N/A
SOURCE MEASURE	Selects Measure	Selects Source
°C/°F MENU	Accesses the setup menu functions so they can be viewed and changed	Toggles the temperature readout between °C and °F
AUTO STEP STEP	Steps to the next stored value	Auto steps
STORE RECALL	In source mode recalls values stored in memory	Stores values in memory
▲	Increments output in accordance with user set resolution	
OFF ▼	Decrements output in accordance with user set resolution	Turns unit off
PRT ENTER	Enters an output value	Selects PRT (RTD) mode

Button	Primary Function	Secondary Function (SHIFT -> BUTTON)
mA / - / .	When pressed before value input, sets negative polarity. When pressed after a value input it sets a decimal point.	Selects mA
µV / 0	Input value 0	Selects µV
mV / 1	Input value 1	Selects mV
B / 2	Input value 2	Selects type B thermocouple
E / 3	Input value 3	Selects type E thermocouple
J / 4	Input value 4	Selects type J thermocouple
K / 5	Input value 5	Selects type K thermocouple
N / 6	Input value 6	Selects type N thermocouple
R / 7	Input value 7	Selects type R thermocouple
S / 8	Input value 8	Selects type S thermocouple
T / 9	Input value 9	Selects type T thermocouple

3 Operating Instructions

3.1 Turning the unit On/Off

To Turn On

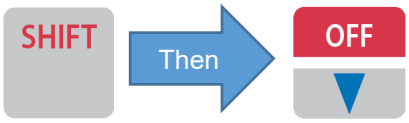
The unit is powered up by pressing and holding any key for longer than 1 second.
On power-up, the software version and (mV/mA/Pt) will be displayed for 2 seconds.

The battery voltage is then checked and if below 6.5V a 'Battery Low' warning is displayed.
If below 6.0V a 'Battery Dead' warning appears and the unit powers down.

The unit then goes into its default start mode, Measure mV:

To Turn off

The unit is powered down by pressing 'SHIFT' followed by 'OFF' key.



3.1.1 Cold Junction Temperature Compensation

Automatic or Manual Cold Junction Temperature Compensation may be applied.
On power up the unit defaults to **Auto CJ status**.

To change to Manual press the 'MENU' key followed by the down arrow until the display indicates #3:

Press the 'ENTER' key. The unit switches to manual and is ready to accept a manual figure entered from the number keys.

The unit remains in the CJ Manual mode until it is turned off.

Note: Setting Cold Junction Compensation in °F requires the unit to be in °F units before entering the menu.

3.2 Thermocouple Measure

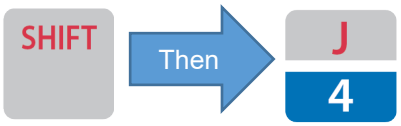
When the unit is turned on it displays the software version number and then enters its default mode (mV measure) and displays:

Connecting the Thermocouple

Connect the thermocouple cable or compensating cable to the 1090's input terminals.

Thermocouple Selection

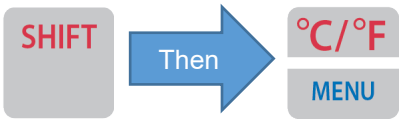
Select the type of thermocouple that you wish to measure by pressing the SHIFT' key immediately followed by the thermocouple type. e.g. SHIFT then J to select type J.



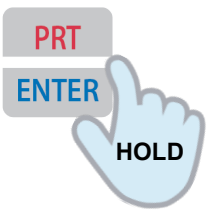
The unit will indicate type and temperature. The display will then show:

The 'a' following the J indicates that the unit is set for automatic cold junction compensation. If automatic cold junction compensation is not required, it should be disabled using the menu set-up. See section 3.1.1

The display may be toggled to show in °F or °C by pressing 'SHIFT' then the 'ºC/ºF' key.



If required, the actual thermocouple output voltage in mV can be shown by pressing and holding down the 'ENTER' key.



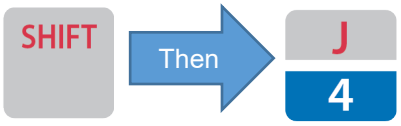
3.3 Thermocouple Source

Select Source mode by pressing ‘SHIFT’ followed immediately by ‘SOURCE’ key.
The display will show:

Thermocouple Selection

Select the type of thermocouple that you wish to simulate by pressing the SHIFT’ key, immediately followed by the thermocouple type.

For example SHIFT followed by ‘J’ to select type J.



The unit will indicate type and temperature. The display will show,

The ‘a’ following the J indicates that the unit is set for automatic cold junction compensation. If automatic cold junction compensation is not required, it should be disabled using the menu set-up. See section 3.1.1.

The display may be toggled to show in °F or °C by pressing ‘SHIFT’ then the ‘ºC/ºF’ key.

If required, the actual thermocouple output voltage in mV can be shown by pressing and holding down the ‘ENTER’ key.

Connect the device to be calibrated to the unit’s **OUTPUT** terminals using thermocouple or compensating cable.
The temperature for a Type J thermocouple can now be simulated. Enter the desired output temperature using the number keys and press ‘ENTER’ or by using the ‘up/down’ arrow keys.

After setting, pressing the ‘ENTER’ key will momentarily display the equivalent source voltage.

3.4 RTD (Pt100) Simulation Measure

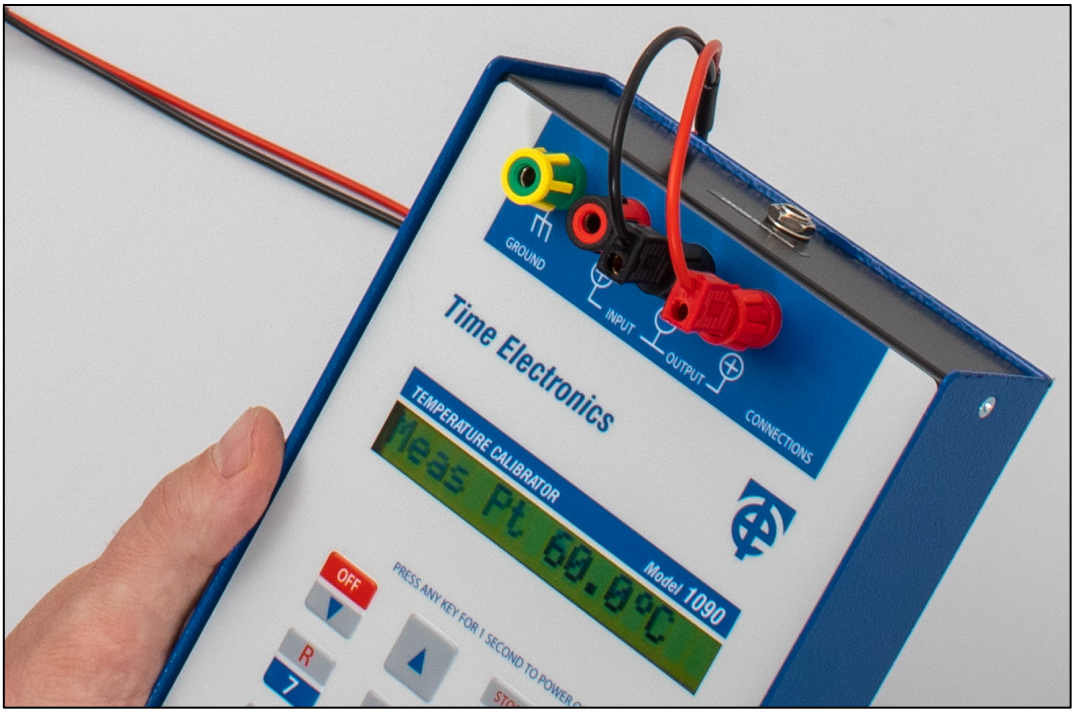
When the unit is turned on it displays the software version number. It then enters its default mode - Millivolt (mV) and displays:

Select the PRT by pressing the SHIFT' key immediately followed by 'PRT':

The word 'Over' indicates over range and is displayed when probe is not connected (Terminals open circuit). The word 'Under' indicating under range is displayed when terminals are short circuited.

The display may be changed to read in ºF by pressing 'SHIFT' then the 'ºC/ºF' key.

For this mode connect a Pt100 sensor to the unit's **OUTPUT** terminals.



The unit will measure temperature.

Pressing the 'ENTER' key will momentarily display the equivalent ohms value.

3.5 RTD (PRT) Source

Select the PRT mode by pressing the SHIFT' key immediately followed by 'PRT':

Select Source mode by pressing 'SHIFT immediately followed by 'SOURCE':

The display may be toggled to show in °F or °C by pressing 'SHIFT' then the 'ºC/ºF' key.

For this mode connect the device to be calibrated to the 1090 **OUTPUT** terminals.

The 1090 is now ready to simulate a Pt100 probe.

Use the 'Up/Down' arrow keys to step change the temperature:

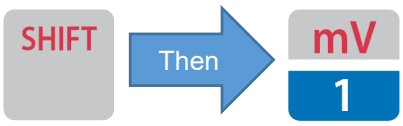
The set points are: -100, -50, -20, 0, 20, 50, 100, 200, 300, 400, 500, 600, 700, 800 °C.

Pressing the 'ENTER' key will momentarily display the equivalent ohms value:

3.6 µV/mV Measure

Measuring mV

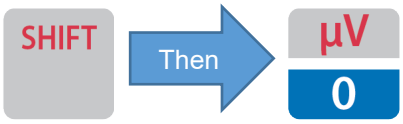
Press ‘SHIFT’ followed immediately by ‘mV’ to select mV measure mode.



The unit is ready to measure mV connected at its **INPUT** terminals.

Measuring µV

To measure µV press ‘SHIFT’ followed immediately by ‘µV’

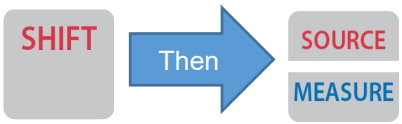


The unit is ready to measure ‘µV’ connected at its **INPUT** terminals.

3.7 µV/mV Source

mV Source

Select Source mode by pressing ‘SHIFT’ immediately followed by ‘SOURCE’:

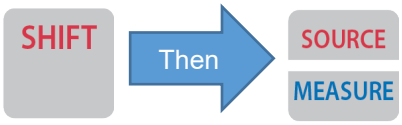


Connect the device to be calibrated to the unit’s **OUTPUT** terminals.

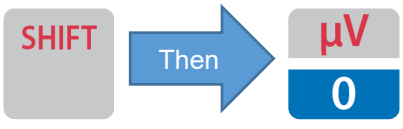
Enter the desired mV values using the numbered keys or ‘Up/Down’ arrow keys, then press ‘ENTER’ to confirm.

µV Source

This operation is the same as the mV source, but ‘µV’ is selected.
Select Source mode by pressing ‘SHIFT immediately followed by ‘SOURCE’:



Then press ‘SHIFT’ followed immediately by ‘µV’:

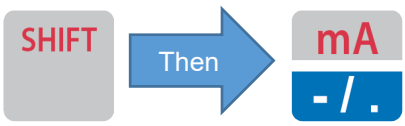


Connect the device to be calibrated to the unit’s **OUTPUT** terminals.

Enter the desired µV values using the numbered keys or ‘Up/Down’ arrow keys, then press ‘ENTER’ to confirm.

3.8 mA Measure

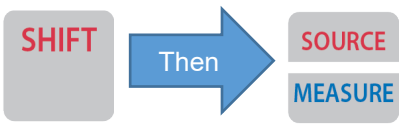
To select mA Measure mode press ‘SHIFT’ followed immediately by ‘mA’:



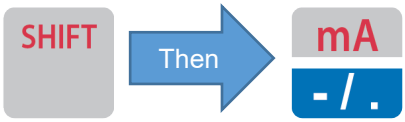
The unit is ready to measure mA at its **INPUT** terminals.

3.9 mA Source and 24 V Process Loop Drive

To select Source mode press ‘SHIFT’ followed immediately by ‘SOURCE’:



To select mA Source mode press ‘SHIFT’ followed immediately by ‘mA’:



Connect the device to be calibrated to the unit’s output terminals

Enter the desired mA values using the numbered keys or ‘Up/Down’ arrow keys, then press ‘ENTER’ to confirm.

Note: It should be noted that the unit can provide a maximum output of 80 mA. The user should be aware that continuous operation at this level will reduce the battery life considerably.

3.9.1 24V process loop drive

It is possible to use the unit to drive process loops with 24 V DC and up to 60 mA.

Select **mA Source** mode as described above. Set the current output to 60 mA (or less if required). The output terminals will then provide 24 V (+/- 0.5 V) to drive the loop.
It will allow up to the set value of current to be supplied before the output voltage will drop.

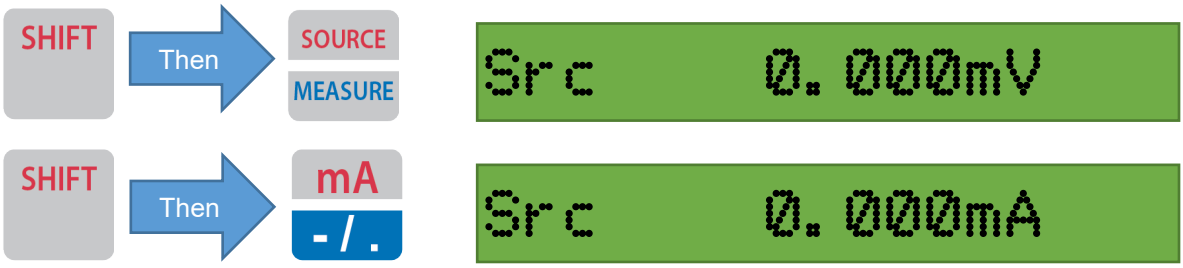
3.10 Storing and Recalling Values

In source mode the 1090 is able to store and recall up to ten output values. The values may be stored in locations 0 to 9. They can then be recalled manually or automatically.

Used in conjunction with the 'Auto Step' function the unit can be programmed to output the stored values in sequence pausing at each value. The pause (wait-time) is adjustable.

3.10.1 Entering and storing values

To store values in memory first the unit has to be in the Source mode. Select the source mode by pressing 'SHIFT' followed immediately by 'SOURCE'. It will default to mV, select another function if required (Thermocouple, RTD, µV or mA).

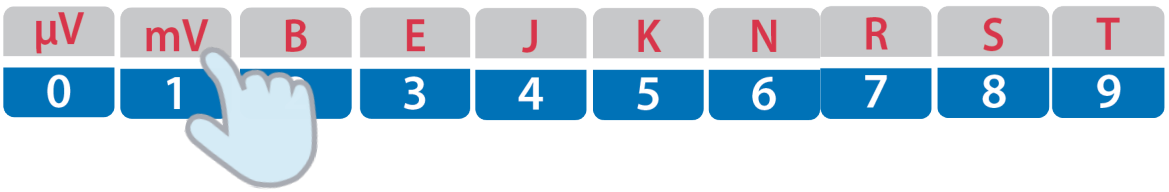


Enter the desired mA values using the numbered keys or 'Up/Down' arrow keys.

Press the enter button to confirm:

Press 'SHIFT' followed by 'STORE' the display will show:

Enter the required store location number, i.e. 0 – 9:



Repeat steps 1 to 3 for up to a maximum of ten store locations.

Note: Store/Recall is not available for PRT (you just step through the fixed values using the up/down arrows for this parameter).

3.10.2 Recalling Values

Note: The 1090 stores numeric values, and not the units. Therefore, the correct units i.e. µV, mV etc. must be selected before the recall is done.

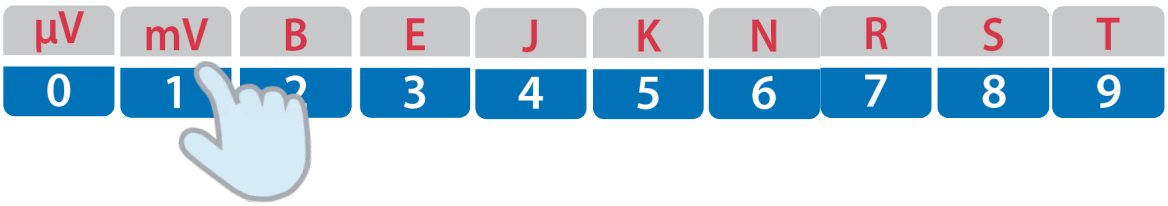
To recall the stored values the unit must be in 'SOURCE' mode.

Then ensure you are in the correct function that you want to use the recalled values.

For example, if the stored values are intended for use with mA, press 'SHIFT' then 'mA':

Then press 'RECALL', the display will show:

Now you can enter required store location number, i.e. 0 – 9:



When you press the required store location number, the display will show the stored value and it will be sent to the output terminals.

Repeat steps 1 and 2 to recall the contents of the other store locations.

3.11 Step and Auto-Step Functions

These modes provide a method of manually or automatically stepping through the stored values.

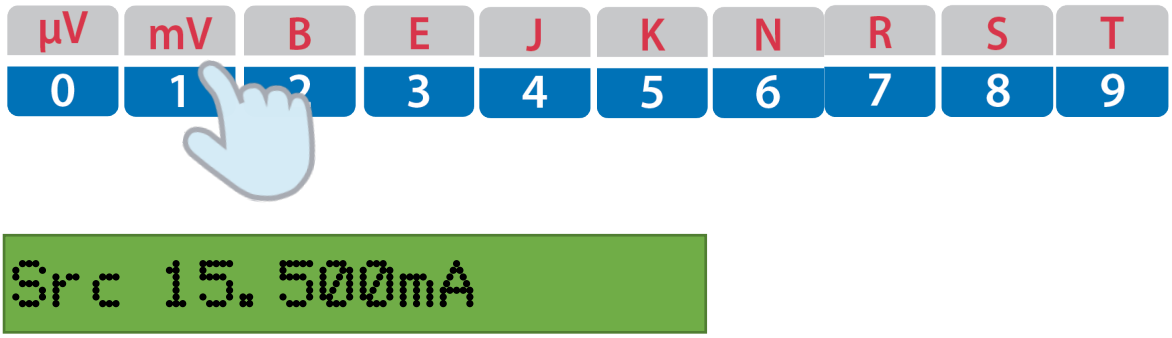
When in automatic mode the unit may be programmed to dwell on the stored value for between 1 and 9 seconds before proceeding to the next one.

To use the Auto/Manual Step functions the unit must be in ‘SOURCE’ mode.

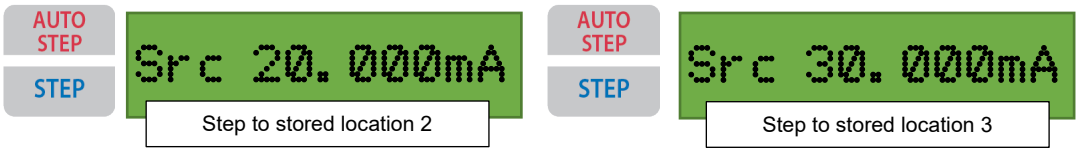
3.11.1 Manual Stepping

Ensure that the unit is in ‘SOURCE’ mode and the desired units are selected. Use the ‘RECALL’ key to set the pointer to the stored locations.

Press the numeric button that you want to start your steps at. For example, number ‘1’ will display and output the value of location 1.

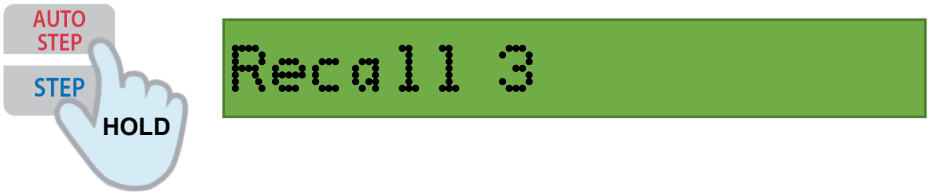


Subsequent pressing of the ‘STEP’ button will step through the store locations in order, starting with location 2.



After recalling the value of location 9 the next step will return to location 1.

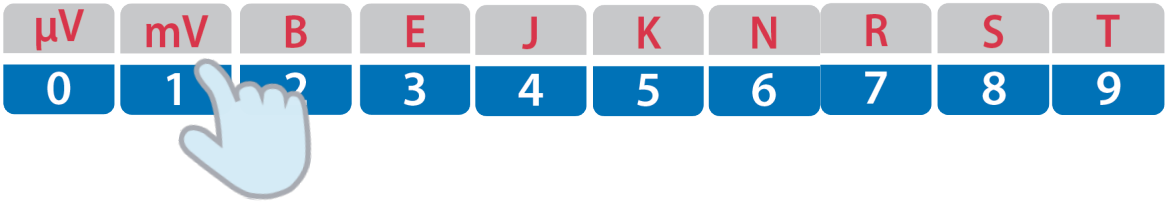
To quickly check the step location number you are setting, you can hold the ‘STEP’ button:



3.11.2 Automatic Stepping

Ensure that the unit is in ‘SOURCE’ mode and the desired units are selected. Use the ‘RECALL’ key to set the pointer to the stored locations.

Press the numeric button that you want to start your steps at. For example, number ‘1’ will display and output the value of location 1.



Now you can select ‘AUTO STEP’:

The display will then ask you to enter the required delay in seconds, enter a single figure between 0 and 9 followed by the ‘ENTER’ key.

This will set the dwell time on each recall and automatically start the sequence. An “A” will show on the right side of the display to indicate auto-stepping mode is active.

After the 9th location has been recalled the sequence will continue by rolling over back to location 1.

The cycle of stepping through the locations will continue indefinitely until any key is pressed. This will terminate the cycle immediately, and the “A” indicator will no longer display.

3.12 Inching (Increment/Decrement)

The unit has a general-purpose inching function. This adjusts the output in fixed increments of temperature (thermocouples only) or voltage or current.

The set-up menu gives the user a choice of three levels of increment:

- 0.1, 1 or 10 for °C/°F
- 1, 10, or 100 µV/µA for voltage/current

The lowest of these represents the highest setting resolution and provides the most precise control of the output.

This is especially useful for calibrating thermostat controllers which have tight specification on hysteresis, or for the fine adjustment of the output level needed to give a precise indicator reading.

3.13 Setup Menu Functions

The MENU key provides access to a number of auxiliary features.

There are 6 menu functions:

1) Power Auto-off
2) Beep On/off
3) Cold Junction Compensation Auto/Manual
4) Inching (Incrementing/Decrementing)
5) Battery status
6) Calibration (see section 6: Calibration for more details)

To enter the setup menu, press the ‘MENU’ button:

If you hold the button down it will display:

Once the button is released the menu is accessed, and function 1 is displayed:

3.13.1 Power Auto-off

This refers to auto power down state. To conserve battery life the unit will switch off after 5 minutes if set to ‘on’.

Enter the setup menu by pressing the ‘MENU’ button:

To disable this function press ‘ENTER’ whilst the display is showing.

3.13.2 Beep On/Off

This turns on/off the bleep sounder when a button is pressed.

Enter the setup menu by pressing the ‘MENU’ button:

Use down arrow key to display ‘2) Beep On’:

To turn it off press ‘ENTER’:

3.13.3 Cold Junction Compensation Auto/Manual

Automatic or Manual Cold Junction Temperature Compensation may be applied.
On power up the unit defaults to **Auto CJ status**.

Enter the setup menu by pressing the 'MENU' button:

Use down arrow key, press twice to display '3) CJ Aut ##':

To change to manual CJC, press the 'ENTER' key. The unit switches to manual and is ready to accept a manual figure entered from the number keys.

Enter the required temperature and press 'ENTER':

The 1090 remains in the CJ Manual mode until it is turned off.
It will revert to Auto when next turned on.

Note: Setting Cold Junction Compensation in °F requires the unit to be in °F units before entering the menu.

3.13.4 Inching (Incrementing/Decrementing) - arrow keys

This function sets the step size used by the Up/Down arrow keys.

Enter the setup menu by pressing the ‘MENU’ button:

Use down arrow key, press three times to display function 4:

Press ‘ENTER’ to cycle between the 3 available settings

Once the step size is displayed, you can exit the menu and the setting will be retained

3.13.5 Battery status

This displays battery voltage.

Enter the setup menu by pressing the ‘MENU’ button:

Use down arrow key, press four times until you see the battery voltage on the display:

3.14 Setting output values between 0.0 and +1.0

It is important that a leading zero is keyed in when setting output positive values between 0.0 and +1.0

The negative sign/decimal point key has a dual function of '-' and '.'

When entering a value, if this key is the first one pressed a negative value will be entered.

If it is not the first key pressed it will enter a decimal point.

Therefore, a leading zero must be entered if a positive value of between 0.0 and 1.0 is required, for example 0.75:

However, this is not the case for settings between 0 and -1.0, where it is allowable to enter just -.75, and a leading zero is not required.

4 Maintenance

4.1 Battery Status and Recharging

The 1090 is powered from an internal metal hydride battery pack with a capacity of 5 AH. This provides up to 60 hours of continuous operation. The mains recharger will recharge the battery fully in approximately 6 hours, the charging status being indicated by an LED on the charger.

LED	MODE
YELLOW	1090 not connected
YELLOW	Battery initialization and analysis
ORANGE	Fast Charge
GREEN with intermittent YELLOW flash	Top-off Charge
GREEN	Trickle Charge
Alternating ORANGE-GREEN	ERROR, Check battery pack

The charger must first be connected to the 1090, and then connect the charger to the mains. Once the charger enters the Trickle Charge stage, indicated by the green LED, the 1090 should be disconnected from the charger within 24hours.

During operation the 1090 battery voltage level is checked once per minute. If the battery voltage falls below 6.5V, a ‘Battery Low’ warning is displayed. If below 6.0V, a ‘Battery Dead’ warning appears and the 1090 powers down.

4.2 Display

The LCD display should not be exposed to strong sunlight for prolonged periods.

4.3 Front Panel Keypad and Connections

Front panel is a sealed membrane keypad.
It should be cleaned by wiping with a damp cloth. Solvents must not be used to clean the keypad as damage may result.

4.4 Fuse

A 2 A slow blow battery supply fuse is located on the main board.
Models manufactured before 2022 have a 0.5 A fuse

5 Specifications

5.1 Technical Specifications

Measure Accuracy (0.1 °C/F resolution)

THERMOCOUPLE TYPE	TEMPERATURE RANGE °C	ACCURACY °C
J	-200 to 580	0.7
K	-200 to –150 -150 to 750	2.5 0.5
T	-200 to 0 0 to 400	1.5 0.4
R	-50 to 400 400 to 1750	3.0 1.5
S	-50 to 100 100 to 1750	3.0 1.5
B	110 to 1000 1000 to 1800	3.5 1.5
N	-100 to 890	0.6
E	-50 to 400	0.4

Simulate Accuracy (0.1 °C/F resolution)

THERMOCOUPLE TYPE	TEMPERATURE RANGE °C	ACCURACY °C
J	-210 to 150 150 to 1200	0.15 0.3
K	-270 to 190 190 to 1250	0.5 0.4
T	-200 to 150 150 to 400	0.4 0.5
R	-50 to 800 800 to 1750	0.8 2.0
S	-50 to 850 850 to 1750	0.9 2.0
B	100 to 1200 1200 to 1800	2.0 3.0
N	-270 to 260 260 to 1300	0.5 1.0
E	-50 to 1000	0.3

An additional correction representing the equivalent 1µV should be allowed for stray thermal emf effects.

Millivolt Measure **0 to 30 mV**

Accuracy:	± 0.05 % of FS ± 1 digit
Resolution:	10 µV
Input resistance:	100 kΩ

Milliamp Measure **0 to 60 mA**

Accuracy:	± 0.05 % of FS ± 1 digit
Resolution:	20 µA
Input resistance:	0.5 Ω

Millivolt Source

0 to 8 mV

Accuracy:	± 4 µV
Resolution:	0.5 µV
Output resistance:	10 Ω

0 to 80 mV

Accuracy :	0.02 % of FS (16 µV)
Resolution:	5 µV
Output resistance:	10 Ω

Milliamp Source

0 to 8 mA

Accuracy:	± 10 µA
Resolution:	0.5 µA

0 to 80 mA

Accuracy:	0.02 % of FS (16 µA)
Resolution:	5 µA
Maximum load (24 V drive):	300 Ω / 80 mA, 480 Ω / 50 mA, 1.2 kΩ / 20 mA

Inching

Three levels of increment, 0.1, 1 or 10 for °C/°F, and 1, 10 or 100 µV/µA for voltage current. The lowest of these represents the highest setting resolution and provides the most precise control of the output.

24 V process loop drive mode

A process loop can be driven at 24 V and up to 60 mA by selecting the 'Milliamp Source' mode and setting it at 60 mA (or a lower level if required).
Max Load Specifications: 300 Ω / 80 mA, 480 Ω / 50 mA, 1.2 kΩ / 20 mA.

Pt100 Simulation

14 set temperature points.
Specification within ± 0.1 % of DIN 43760 resistance values on all settings.

Reading ° C	-100.0	-50.0	-20.0	0.0	20.0	50.0	100.0	200.0
Accuracy °C	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5
Reading °C	300.0	400.0	500.0	600.0	700.0	800.0		
Accuracy °C	0.5	0.5	0.5	0.7	0.7	0.7		

Pt100 Measure (0.2 °C or °F resolution)

0 to 300.0 Ω, 2 wire.

Reading °C	-100.0	-50.0	0.0	100.0	150.0	200.0	250.0	300.0
Accuracy °C	0.8	0.8	0.7	0.7	0.7	0.7	1.0	1.0

5.2 General Specifications

Cold Junction Compensation

Resolution:	0.1 °C or 0.2 °F.
Accuracy:	0.1 °C / 0.2 °F at 22 °C/72°F.
Variation with change in ambient:	+/- 0.02 °C/F per °C/F

Operating Temperature

-10 to 40 °C (15 to 105 °F)

Connections

4 off 4mm low thermal screw terminals.

Power

The internal metal hydride battery pack gives approximately 60 hours continuous operation. The mains re-charger supplied allows full recharge within approximately 6 hours. To conserve battery life a user inactivity automatic power down feature is included.

Dimensions/Weight

Dimensions: 235 x 150 x 75 mm (9.25 x 6 x 3 ins)

Weight: 1.25 Kg (2.8 lbs)

6 1090 Calibration Procedure

Calibration

MENU 6 ENTER, enters calibration mode

The unit will prompt for a password to enter cal mode.
The password is 982053.

There are 8 calibration steps as follows; Pressing CLEAR at any step will skip that step, leaving the calibration data for that step unchanged. Power must not be removed during the calibration process, as this will cause the data check sum to be incorrect.

1) Input +30mV	Apply +30.000mV to the input terminals. PRESS ENTER.
1) Input -30mV	Apply -30.000mV to the input terminals. PRESS ENTER
2) Src +80.00mV	Measure the output voltage. Use the up/down keys to adjust for an output of 80.000mV output. For coarse adjustment the keys immediately below the arrow keys can be used : 7/8 adjust down and up in 10 times larger units, 4/5, 100 times When the unit is first calibrated after manufacture, the cal factor may be a long way out. To avoid lots of key pressing, pressing SHIFT will set it to a value close to the nominal calibration value.
3) Src +8.0mV	As above, adjust for +8.000mV
4) Src - 80.0mV	As above, adjust for -80.000mV
5) Src -8.0mV	As above, adjust for -8.000mV
6) Temp	Display current calibrated temperature. If incorrect, press ENTER and enter the current temperature at the CJ sense point in degrees C.
7) Pt100	Only perform this task if the mA/pt100 board is fitted. Connect a 300.0Ω precision resistor across the output terminals Press ENTER.

The 1090 will then restart.

If the PRT/Current board is fitted and requires calibration, this must be done after the voltage steps 1-6 above have been performed P50 calibrates the current measure mode, and P51 current source mode. These should be adjusted at full-scale (30mA measure, 80mA source).

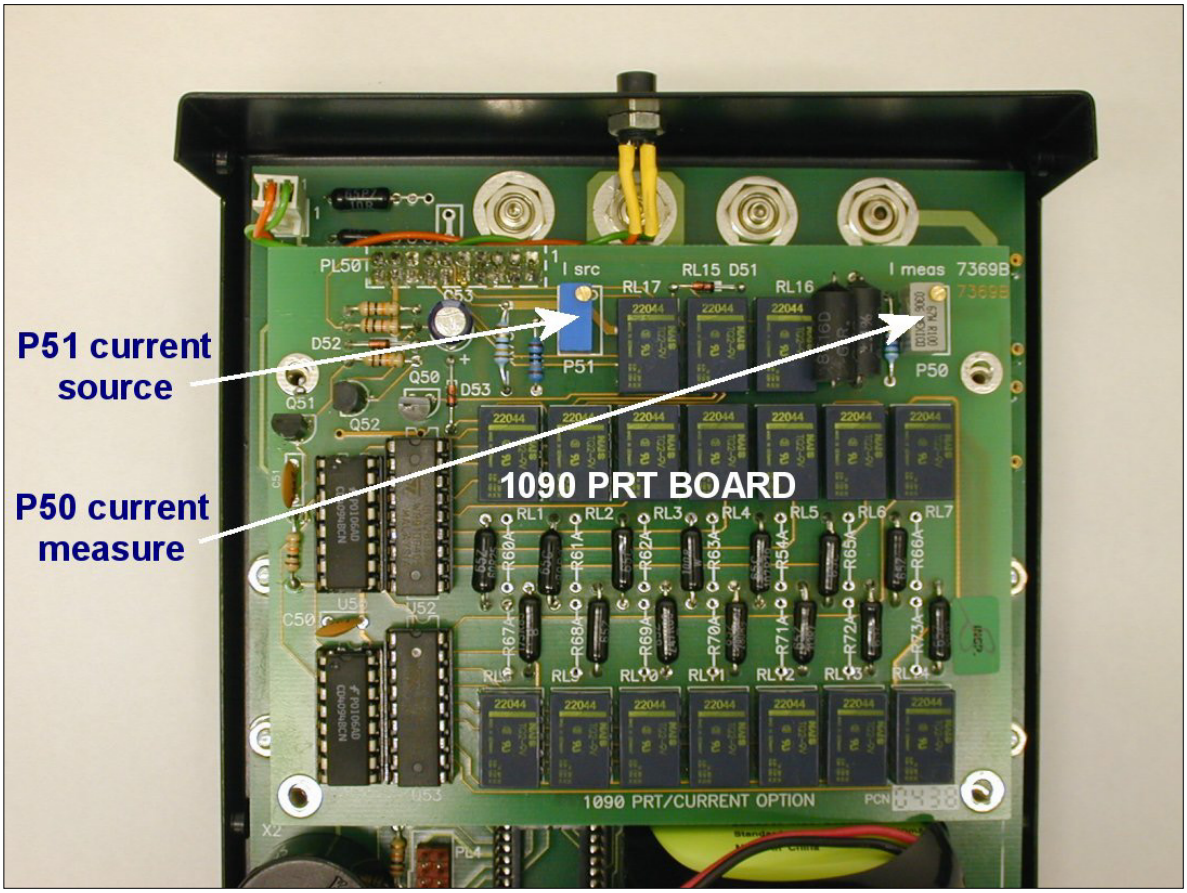
If the PRT/Current board is recalibrated, you must repeat step 8 above afterwards (use CLEAR to skip past the other steps).

Notes on the PRT/Current option board.

The PRT/Current board has calibration adjustments on-board for current source and measure and can be supplied ready-calibrated for retrofitting in the field.

When a 1090 unit is initially factory calibrated, it is necessary to fit a calibrated PRT/Current option board so that step 8 can be completed

(this calibrates for the initial accuracy of the on-board voltage reference).



7 Warranty and Servicing

Warranty

Time Electronics products carry a one-year manufacturer's warranty as standard.

Time Electronics products are designed and manufactured to the highest standards and specifications to assure the quality and performance required by all sectors of industry. Time Electronics products are fully guaranteed against faulty materials and workmanship.

Should this product be found to be defective, please contact us using the below details. Inform us of the product type, serial number, and details of any fault and/or the service required. Please retain the supplier invoice as proof of purchase.

This warranty does not apply to defects resulting from action of the user such as misuse, operation outside of specification, improper maintenance or repair, or unauthorized modification. Time Electronics' total liability is limited to repair or replacement of the product. Note that if Time Electronics determine that the fault on a returned product has been caused by the user, we will contact the customer before proceeding with any repair.

Product Registration

You can register your product at: www.timeelectronics.com/contact/product-registration
Registering your product will enable us to maintain a record of purchase for your warranty. You can also use the web form to provide feedback about our products and services.

Calibration and Repair Services

Time Electronics offers repair and calibration services for all the products we make and sell. Routine maintenance by the manufacturer ensures optimal performance and condition of the product. Periodic traceable or accredited calibration is available.

Contacting Time Electronics

Online:
Please visit www.timeelectronics.com and select Technical Support from the Contact links. From this page you will be able to send information to the Time Electronics service team who will help and support you.

By phone:
+44 (0) 1732 355993

By email:
mail@timeelectronics.co.uk

Returning Instruments

Prior to returning your product please contact Time Electronics. We will issue a return merchandise authorization (RMA) number that is to accompany the goods returning. Further instructions will also be issued prior to shipment. When returning instruments, please ensure that they have been adequately packed, preferably in the original packing supplied. **Time Electronics Ltd will not accept responsibility for units returned damaged.** Please ensure that all units have details of the service required and all relevant paperwork.

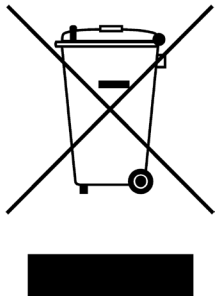
Send the instrument, shipping charges paid to:

Time Electronics Ltd
Unit 5, TON Business Park, 2-8 Morley Road,
Tonbridge, Kent, TN9 1RA.
United Kingdom.

Tel: +44(0)1732 355993
Fax: +44(0)1732 350198

Email: mail@timeelectronics.co.uk
Web Site: www.timeelectronics.com

Disposal of your old equipment



1. When this crossed-out wheeled bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC.
2. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or return to Time Electronics.